5718

MEDIUM-MU TRIODE

SUBMINIATURE TYPE

5718 PREMIUM TYPE

Intended for applications where dependable performance under shock and vibration is paramount.

GENERAL DATA

Electrical:

Heater, for Unipotential Cathode:

Voltage	6.3 ± 5%	ac or dc volts
Current	0.150	amp

Direct Interelectrode Capacitances:

	With External Shield°	*Without External Shield*	
Grid to Plate	1.3	1.4	μμf
Input	2.4	2.2	μμf
Output	2.4	0.7	μμf

° Having inside diameter of 0.405" and connected to lead No.5.

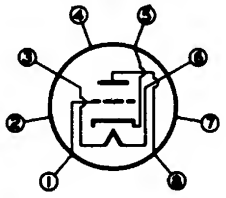
Characteristics, Class A_1 Amplifier:

Plate Supply Voltage	100	150	volts
Cathode Resistor	150	180	ohms
Amplification Factor	27	27	
Plate Resistance	4650	4150	ohms
Transconductance	5800	6500	μmhos
Plate Current	8.5	13.0	ma
Grid Volts (Approx.) for plate current of 10 μamp	−7	−11	volts

Mechanical:

Operating Position	Any
Maximum Bulb Length	1-3/8"
Length from Button Seal to Bulb Top (Excluding tip)	1.075" ± 0.060"
Diameter	0.383" ± 0.017"
Bulb	T-3
Leads, Flexible	8
Length	1-1/2" to 1-3/4"
Orientation and Diameter	See Dimensional Outline

BOTTOM VIEW



Lead No.1 – Grid
Lead No.2 – No Conn.
Lead No.3 – Heater
Lead No.4 – No Conn.
Lead No.5 – Cathode
Lead No.6 – Heater
Lead No.7 – No Conn.
Lead No.8 – Anode

AMPLIFIER - Class A_1

Maximum Ratings, *Absolute Values*:

DC PLATE VOLTAGE	165 max.	volts

5718

5718

MEDIUM-MU TRIODE

PLATE DISSIPATION	3.3 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	200 max.	volts
Heater positive with respect to cathode	200 max.	volts
BULB TEMPERATURE (At hottest point on bulb surface)	250 max.	°C

Typical Operation as Resistance-Coupled Amplifier:

See RESISTANCE-COUPLED AMPLIFIER CHART at end of tabulated data for this type

Maximum Circuit Values:

Grid-Circuit Resistance:

For cathode-bias operation	1.2 max.	megohms
For fixed-bias operation	Not recommended	

Cathode-Bias Resistance - An adequate value of cathode-bias resistor should be used to protect the tube in event of temporary failure of excitation and resultant loss in developed bias.

RF AMPLIFIER and OSCILLATOR - Class C

Operation with full input is permissible up to 1000 Mc.

Maximum Ratings, *Absolute Values*:

DC PLATE VOLTAGE	165 max.	volts
DC GRID VOLTAGE	-55 max.	volts
DC PLATE CURRENT	22 max.	ma
DC GRID CURRENT	5.5 max.	ma
PLATE DISSIPATION	3.3 max.	watts
PEAK HEATER-CATHODE VOLTAGE:		
Heater negative with respect to cathode	200 max.	volts
Heater positive with respect to cathode	200 max.	volts
BULB TEMPERATURE (At hottest point on bulb surface)	250 max.	°C

Maximum Circuit Values:

Grid-Circuit Resistance:

For cathode-bias operation	1.2 max.	megohms
For fixed-bias operation	Not recommended	

Cathode-Bias Resistance - An adequate value of cathode-bias resistor should be used to protect the tube in event of temporary failure of excitation and resultant loss in developed bias.

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

5718

MEDIUM-MU TRIODE

CHARACTERISTICS RANGE VALUES FOR EQUIPMENT DESIGN*

	Note	Min.	Max.	
Heater Current	1	0.138	0.162	amp
Grid-to-Plate Capacitance	2	1.1	1.8	μμf
Input Capacitance	2	1.6	2.8	μμf
Output Capacitance	2	0.5	0.9	μμf
Amplification Factor	1,3	23	31	
Plate Current	1,3	6.0	11.0	ma
Plate Current	1,4	-	100	μamp
Transconductance	1,3	4800	6800	μmhos
Transconductance	5,3	4500	-	μmhos
Grid Current	1,6	-	±0.4	μamp
Heater-Cathode Leakage Current:				
Heater negative with respect to cathode	1,7	-	7.0	μamp
Heater positive with respect to cathode	1,7	-	7.0	μamp
Leakage Resistance:				
Between Grid and All Other Electrodes Tied	1,8	100	-	megohms
Between Plate and All Other Electrodes Tied	1,9	100	-	megohms
Useful Power Output	1,10	600	-	mw

* Each tube is stabilized before characteristics testing by continuous operation for at least 45 hours at room temperature and with dissipation values equivalent to life test conditions.

Note 1: With 6.3 volts ac or dc on heater.

Note 2: With external shield.

Note 3: With dc plate supply voltage of 100 volts, cathode resistor of 150 ohms, and cathode bypass capacitor of 1000 microfarads.

Note 4: With dc plate voltage of 100 volts, and dc grid voltage of -7 volts.

Note 5: With 5.5 volts ac or dc on heater.

Note 6: With dc plate supply voltage of 100 volts, cathode resistor of 150 ohms, and grid resistor of 0.5 megohm.

Note 7: With 100 volts dc between heater and cathode.

Note 8: With grid 100 volts negative with respect to all other electrodes tied together.

Note 9: With plate 300 volts negative with respect to all other electrodes tied together.

Note 10: In self-excited oscillator with dc plate voltage of 150 volts, grid resistor and feedback optimized to give useful power output at a plate current of 20 ma. and frequency of 500 Mc.

SPECIAL RATINGS & PERFORMANCE DATA

Shock Rating:

Impact Acceleration . . . . . 450 max. g

Tubes are held rigid in three different positions in a Navy Type, High Impact (flyweight) Shock Machine and are subjected to 450 g impact acceleration.

5718

5718

MEDIUM-MU TRIODE

Fatigue Rating:

Vibrational Acceleration . . . . . 2.5 max. g

Tubes are rigidly mounted and subjected in each of three positions to 2.5 g vibrational acceleration at 25 cycles per second for 32 hours.

Uniform Acceleration Rating . . . . . 1000 max. g

Tubes are subjected in each of three positions to a gradually applied uniform acceleration up to 1000 g.

High-Frequency Vibration Performance:

RMS Output Voltage . . . . . 60 max. mv

Under the following conditions: A 100-volt plate and grid-No.2 voltage supply having an impedance not exceeding that of a 40-μf capacitor, plate load resistance of 10000 ohms, grid-No.1 resistor of 0.1 megohm, cathode resistor of 150 ohms, cathode bypass capacitor of 1000 μf, and vibrational acceleration of 15 g at 40 cps.

Heater-Cycling Life Performance:

Cycles of Intermittent Operation . . 2500 max. cycles

Under the following conditions: With heater voltage of 7.0 volts cycled 1 minute on and 4 minutes off, heater-cathode voltage of 140 volts (rms), and plate, grid-No.2, and grid-No.1 voltage = 0 volts.

Average Life Performance:

The average life performance based on a 500-hour test at 175°C ambient temperature is not less than 450 hours. This life test is made on sample lot of tubes with heater voltage of 6.3 volts; plate supply voltage of 100 volts; grid-No.2 supply voltage of 100 volts; dc heater-cathode voltage (heater positive with respect to cathode) of 200 volts; cathode resistor of 150 ohms; and grid-No.1 resistor of 1 megohm.

The 500-hour end-point limits for the 5840 with heater voltage of 6.3 volts, plate supply voltage of 100 volts, grid-No.2 supply voltage of 100 volts; cathode resistor of 150 ohms bypassed by capacitor having a maximum reactance of 3 ohms, and dc heater-cathode voltage of 100 volts with heater either positive or negative with respect to cathode are: transconductance, 3250 micromhos minimum; heater-cathode leakage current, 20 microamperes maximum; and grid-No.1 current, +0.9 microampere maximum or -0.9 microampere maximum.

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

5718

5718

MEDIUM-MU TRIODE

OPERATING CONDITIONS AS RESISTANCE-COUPLED AMPLIFIER

Plate-Supply Voltage	100						volts
Plate Load Resistor	0.047		0.10		0.27		meg
Grid-No.1 Resistor°	0.10	0.27	0.27	0.47	0.27	0.47	meg
Cathode Resistor	1000	1200	2200	2700	6800	8200	ohms
Sig. Input Volt. (rms)	0.5	0.5	0.5	0.5	0.5	0.5	volt
Output Voltage (rms)	8.2	8.5	8.2	8.2	7.3	7.4	volts
Voltage Gain▲	16.4	17.0	16.4	16.4	14.6	14.8	
Distortion	3.9	3.2	3.0	2.71	3.4	2.8	%
Sig. Input Volt. (rms)*	0.59	0.70	0.67	0.81	0.75	0.86	volt
Output Voltage (rms)	9.7	11.75	11.0	13.1	11.0	12.7	volts
Voltage Gain▲	16.4	16.8	16.4	16.2	14.6	14.8	
Distortion	4.5	4.7	4.1	4.6	5.0	5.0	%

Plate-Supply Voltage	200						volts
Plate Load Resistor	0.047		0.10		0.27		meg
Grid-No.1 Resistor°	0.10	0.27	0.27	0.47	0.27	0.47	meg
Cathode Resistor	820	1000	1800	2200	4700	5600	ohms
Sig. Input Volt. (rms)	1.0	1.0	1.0	1.0	1.0	1.0	volt
Output Voltage (rms)	19.0	19.5	18.6	18.1	16.2	16.2	volts
Voltage Gain▲	19.0	19.5	18.6	18.1	16.2	16.2	
Distortion	4.0	3.3	3.2	3.1	3.8	3.2	%
Sig. Input Volt. (rms)*	1.23	1.45	1.43	1.56	1.34	1.58	volts
Output Voltage (rms)	23.4	28.0	26.0	28.2	21.6	25.0	volts
Voltage Gain▲	19.0	19.3	18.2	18.1	16.1	15.8	
Distortion	5.0	5.0	4.9	5.0	5.1	5.1	%

° of following stage.

▲ Ratio of signal output to signal input.

* Maximum value to swing the grid of resistance-coupled amplifier tube to the point where its grid No.1 starts to draw current.

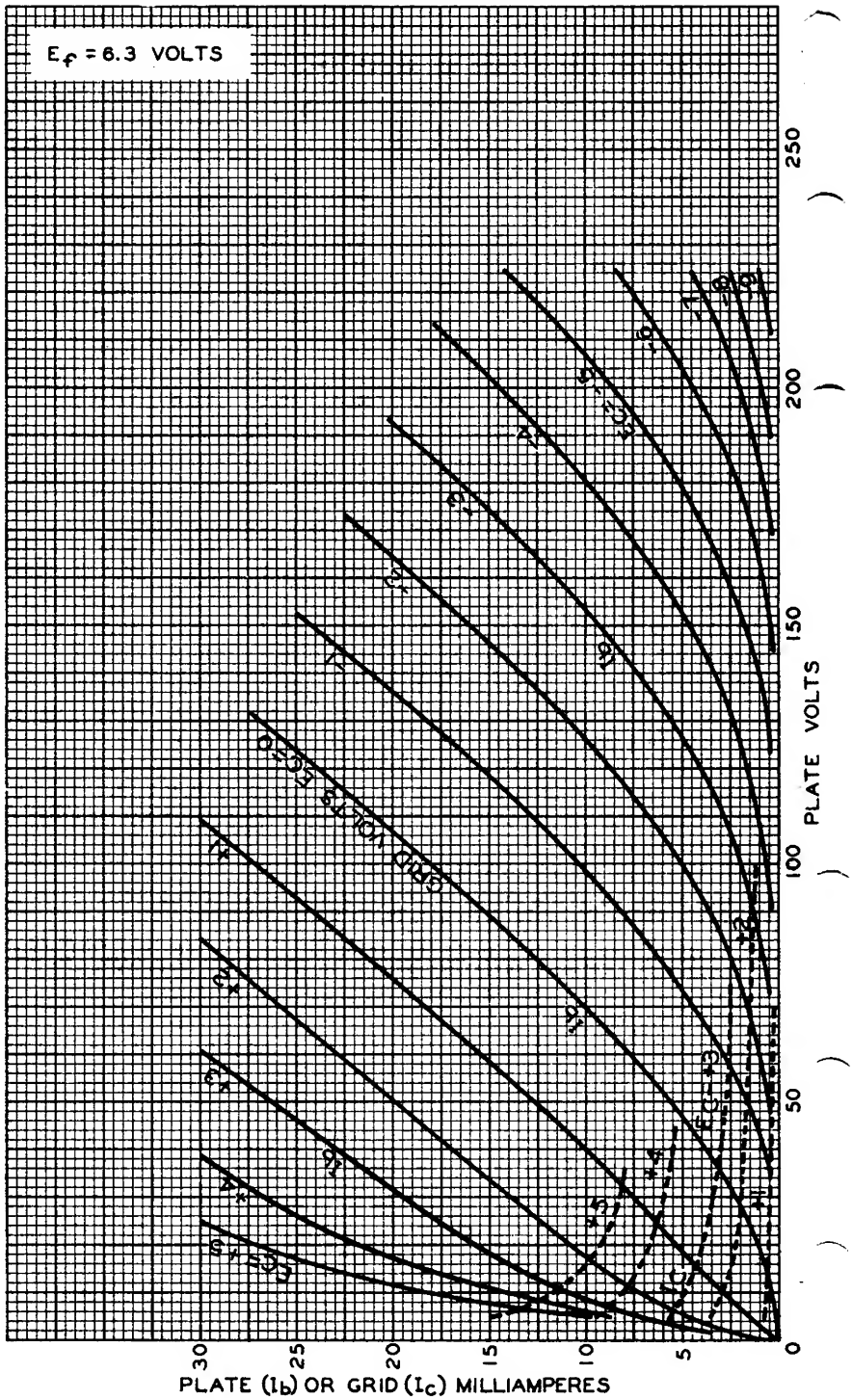
Note: Coupling capacitors should be selected to give desired frequency response. Cathode resistors should be adequately bypassed.

TUBE DEPARTMENT
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

5718

5718

AVERAGE PLATE CHARACTERISTICS



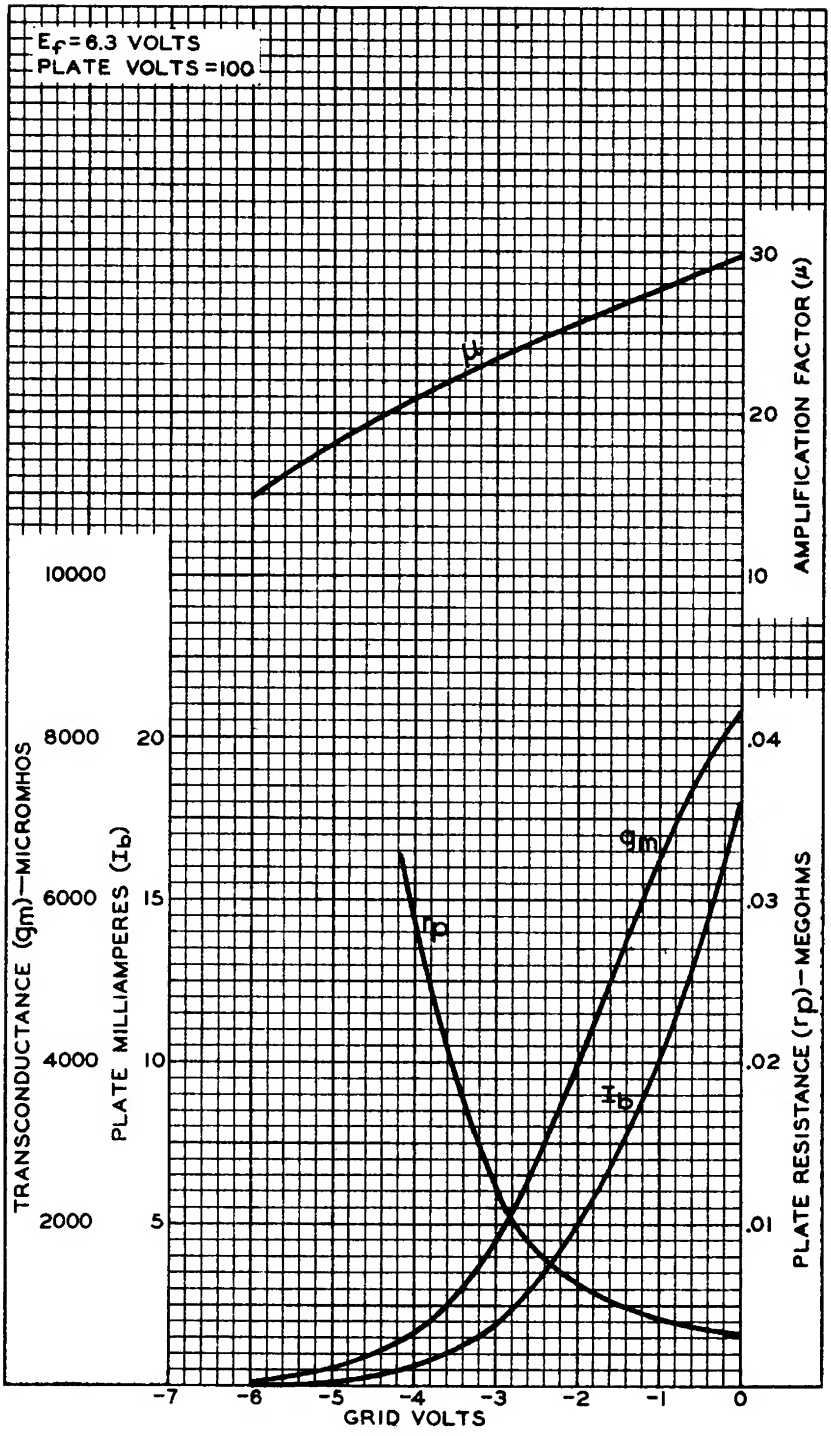
SEPT. 23, 1952 TUBE DEPARTMENT 92CM-7848

RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

RCA

5718

AVERAGE CHARACTERISTICS



SEPT. 25, 1952

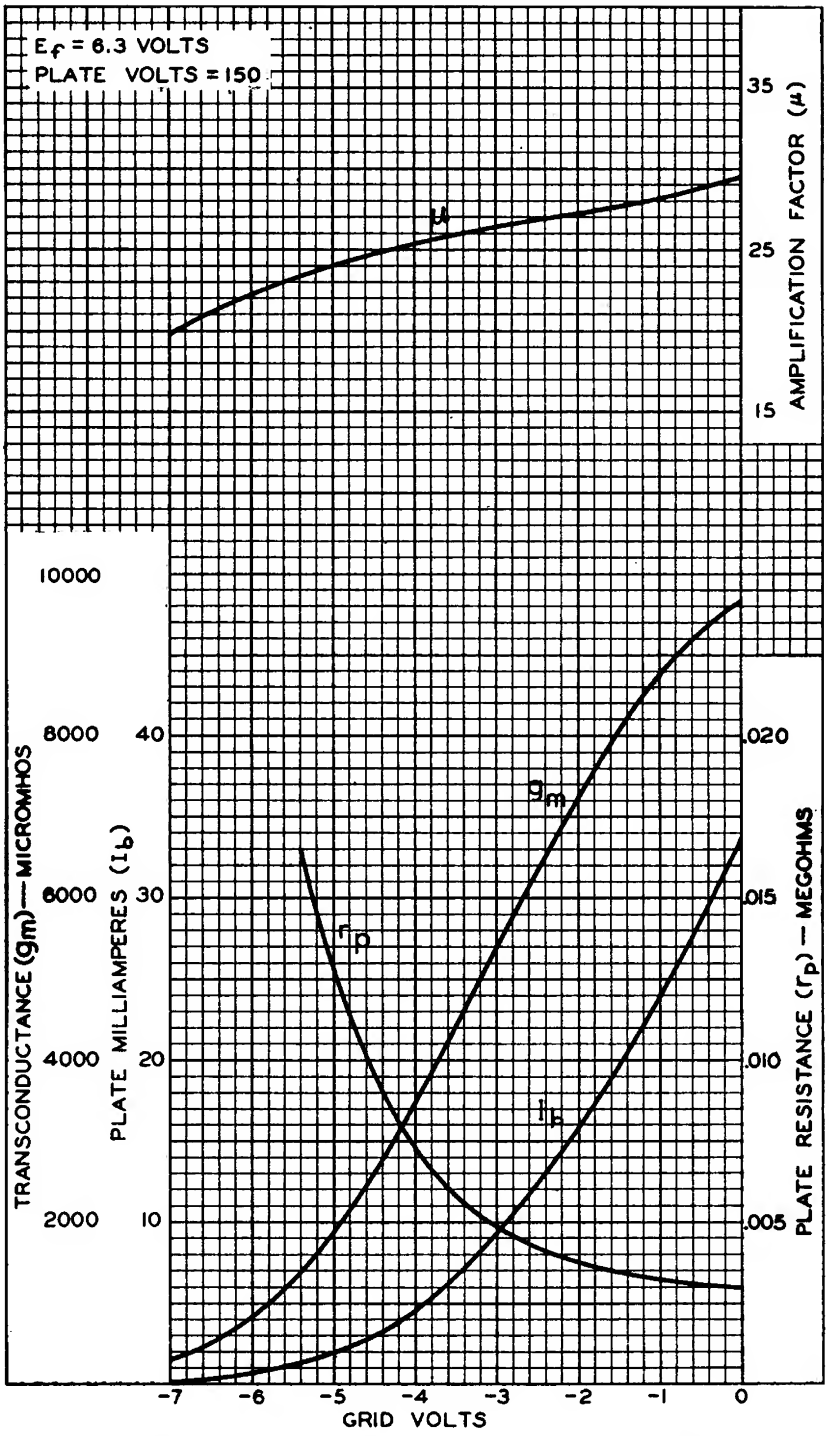
TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7850

5718

5718

AVERAGE CHARACTERISTICS



APRIL 22, 1955

TUBE DIVISION
RADIO CORPORATION OF AMERICA, HARRISON, NEW JERSEY

92CM-7851RI